

BIOLOGICAL EVALUATION
Mountain Pine Beetle in Ponderosa Pine
Vernal District
Bureau of Land Management
Utah
1972

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INTRODUCTION

On July 19, 1972, entomologist Larry Stipe examined the mountain pine beetle infestation in ponderosa pine on the Blue Mountain planning unit. He was accompanied by Don Smith from the Vernal District Office, Bureau of Land Management. The infested area is located on a high precipice overlooking Snake John Reef and U.S. Highway 40. This site, consisting of approximately 400 acres of ponderosa pine, has recently been selected for development into a high use recreation area. The physical and esthetic characteristics of the area make it very desirable for future development. In addition, Blue Mountain is near planned improvements for Dinosaur National Monument.

TECHNICAL INFORMATION

INSECT: Mountain pine beetle, Dendroctonus ponderosae Hopkins.

HOST TREE: Ponderosa pine, Pinus ponderosa Laws.

TYPE OF DAMAGE: Killing of ponderosa pine.

LOCATION: Blue Mountain (Cliff Ridge), Bureau of Land Management lands southeast of Vernal, Utah. Elevation is between 8,000 and 8,200 feet. (See appended map.)

EXTENT OF OUTBREAK: Mountain pine beetle caused mortality is occurring over the entire ponderosa pine stand (approximately 400 acres) on Blue Mountain.

BIOLOGICAL INFORMATION

The Blue Mountain bark beetle infestation was first detected and examined by BLM District personnel from Vernal, Utah. On June 13-14, 1972, they conducted a 100 percent survey using Keen's classification system.^{1/}

^{1/} Keen, F. P., 1943. Ponderosa pine tree classes redefined. J. Forestry, 41: 249-253.

Each tree was classified as to age and vigor class and current bark beetle condition. A resumé of their data follows:

Age Class	Vigor Class	Number of Trees	Number of Infested Trees		
			Dead	1970 Attacks	1971 Attacks
1	A	174	-	-	-
	B	1,287	-	-	-
	C	220	-	-	-
	D	102	-	-	-
2	A	97	-	-	-
	B	540	-	-	2
	C	310	7	-	1
	D	86	-	-	-
3	A	59	-	-	-
	B	306	3	-	-
	C	355	14	3	2
	D	47	2	3	-
4	A	73	1	-	-
	B	410	4	3	-
	C	338	8	13	3
	D	67	7	4	1
Total		4,471	46	26	9

These data illustrate the expected pattern of mortality. Namely, greater mortality will occur among the old and/or less vigorous trees than among the young, fast-growing trees. However, this pattern or risk system, which was developed in the Pacific Northwest for the western pine beetle, Dendroctonus brevicornis, may only have limited application for the mountain pine beetle.

Infested trees examined in July contained heavy brood populations. Brood stage was mostly callow and mature adults and some pupae. Adult emergence had begun, and new attacks were found with broods in the egg stage. Most of the dead and currently infested trees are the oldest and slowest growing in the stand. A majority of these are over 24 inches d.b.h. The present infestation level is classified as light.

DISCUSSION

Although the history and trend of this infestation are not known, several facts can be drawn from the present situation. The decline recorded between 1970 and 1971 indicates the infestation has reached its peak and is on the decline. This downward trend should continue until tree killing subsides in 2 or 3 years. Also, a greater proportion

of the large diameter trees have been and will be killed. During the life of the infestation, tree losses should not exceed 25 percent of the trees 6 inches d.b.h. and larger.

Blue Mountain was selected for future development because this area has several outstanding characteristics which make it very valuable as a recreation site. The most important of these would include the following:

1. It is the only coniferous stand for many miles.
2. It is an ideal site for an interpretive and scenic overlook.
3. The area is excellent for a multiunit campground.
4. It is near Dinosaur National Monument.

Any large reduction in the ponderosa pine stand would seriously diminish recreational values. Therefore, all steps should be taken to reduce future losses of ponderosa pine to the fullest extent possible. Assuming the land manager does not elect to accept losses as they naturally occur, the following alternatives can be used to reduce tree losses over the next several years:

1. Treat all infested trees. Treating methods used have been fall and burn, fall and chemical spray, standing spray, and standing burn. In recreation areas, the fall and burn method would have the least long-term environmental impact.
2. Salvage logging. All dead and infested trees are cut and removed for processing. In many areas, however, green timber is added to a salvage sale to make it economically practical.
3. Timber harvest. All commercial size trees are cut and utilized before they would otherwise be lost.

Salvage logging and timber harvest are incompatible with recreational use. Treating of all infested trees is normally used as a delaying tactic to provide time for logging operations to harvest threatened timber. Usually, this method will not reduce overall losses or shorten the length of an infestation, but it can postpone the inevitable. It is generally ineffective when used over too large an area. However, because the Blue Mountain infestation is in a small isolated patch of ponderosa pine, overall mortality can be reduced.

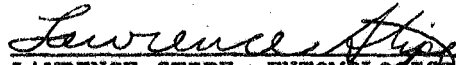
RECOMMENDATIONS

The fall and burn method of individual tree treatment is recommended to reduce tree losses on Blue Mountain. All currently infested trees (1972 attacks) should be felled and burned prior to beetle flight next summer. This recommendation is made with full consideration of all aspects of the present situation. Particular importance is placed on the isolation of this stand. The nearest active bark beetle infestation is approximately 35 miles away on the Ashley National Forest. Migration from this infestation is highly unlikely. Other important considerations which support this recommendation are:

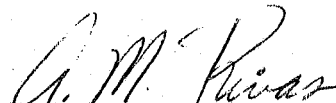
1. Low infestation level.
2. Size of infested area.
3. High recreational values.

Removing the infested trees would eliminate the potential hazard dead trees would create in and near a recreational site.

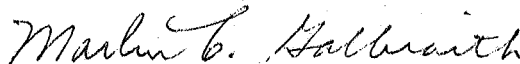
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